

REMARKS

Favorable reconsideration of this application, as presently amended and in light of the following discussion, is respectfully requested.

Claims 17-25 are currently pending. Claims 17-25 have been amended by the present amendment. The changes to the claims are supported by the originally filed specification and do not add new matter.

In the outstanding Office Action, Claims 18-20 and 23-25 were rejected under 35 U.S.C. § 112, second paragraph, as failing to further define the structure recited in the independent claims; the specification and Claims 17-25 were rejected under 35 U.S.C. § 112, first paragraph, as not providing an adequate written description; and Claims 17-25 were rejected under 35 U.S.C. § 102(a) as being anticipated by U.S. Patent No. 6,175,614 to Jensen et al. (hereinafter “the ‘614 patent”).

Amended Claim 17 is directed to a diagnostic X-ray system configured to operate in a fluoroscopy mode and an imaging mode, comprising, *inter alia*: (1) an X-ray generating unit configured to perform a first X-ray radiation in the fluoroscopy mode to determine an imaging position, and to perform a second X-ray radiation in the imaging mode to acquire a diagnosis image, according to predetermined respective X-ray loading factors, wherein a strength of radiated X-rays in the imaging mode is higher than a strength of radiated X-rays in the fluoroscopy mode; (2) an X-ray beam limiting unit configured to limit a radiation region of X-rays through beam limiting; (3) an image generating unit configured to generate an image based on the X-rays passing through a subject; (4) a region setting unit configured to set a first region in the image when the X-ray system is in the fluoroscopy mode and to set a second region broader than the first region in the image when the X-ray system is in the imaging mode; (5) a region transform unit configured to transform the first region to exclude the radiation region corresponding to the beam limiting when the first region includes the

radiation region corresponding to the beam limiting, and to transform the second region to exclude the radiation region corresponding to the beam limiting when the second region includes the radiation region corresponding to the beam limiting; and (6) a controller configured to determine the X-ray loading factor related to the first X-ray radiation or the second X-ray radiation based on the computed brightness value, and to perform feedback control of the X-ray generating unit based on the determined X-ray loading factor. The changes to Claim 17 are supported by the originally filed specification and do not add new matter.<sup>1</sup>

Applicants respectfully submit that the rejection of Claims 18-20 and 23-25 under 35 U.S.C. § 112, second paragraph, are rendered moot by the present amendment to those claims. The dependent claims have been amended to clearly recite additional structure from the structure recited in the independent claims. Accordingly, Applicants respectfully submit that the rejection of the claims under 35 U.S.C. § 112, second paragraph, is rendered moot.

Applicants respectfully submit that the rejection of Claims 17-25 under 35 U.S.C. § 112, first paragraph, is rendered moot by the present amendment to Claims 17 and 22. Claims 17 and 22 have been amended to clearly recite a difference between the fluoroscopy mode and the imaging mode. Further, Applicants respectfully submit that the Applicants' specification clearly identifies and describes the differences between the two modes. Accordingly, Applicants respectfully submit that the objection to the specification is rendered moot by the present amendment to the independent claims.

Regarding the rejection of Claims 17-25 under 35 U.S.C. § 102, the '614 patent is directed to a method for providing automatic brightness control in a closed loop X-ray imaging system. As shown in Figure 11, the '614 patent discloses an X-ray tube 100, a collimator subsystem 102, an intensifier tube 108, a camera 110, and an ABS control unit

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<sup>1</sup> See, e.g., page 20, lines 10-12 of the specification.

118. Further, the '614 patent discloses that the location, size, and shape of the ABS sampling window is adjusted in accordance with statistical information including spatial gray scale distribution data derived from the data related to the X-ray system and image being processed, thereby enabling the automatic brightness control to make brightness and power adjustments in accordance with statistical data from the modified ABS sampling window.<sup>2</sup> However, Applicants respectfully submit that the '614 patent does not disclose a diagnostic X-ray system configured to operate in a fluoroscopy mode and an imaging mode including an X-ray generating unit configured to perform a first X-ray radiation in the fluoroscopy mode to determine an imaging position, and a second X-ray radiation in the imaging mode to acquire a diagnosis image, according to predetermined respective X-ray loading factors, wherein a strength of radiated X-rays in the imaging mode is higher than a strength of radiated X-rays in the fluoroscopy mode, as recited in Claim 17. Further, Applicants respectfully submit that the '614 patent fails to disclose a region setting unit that configured to set a first region in the image when the X-ray system is in the fluoroscopy mode, and to set a second region broader than the first region in the image when the X-ray system is in the imaging mode, as recited in Claim 17. Since the '614 patent fails to disclose the fluoroscopy mode and the imaging mode, it follows that it must also fail to disclose a region setting unit that sets regions based on whether the diagnostic X-ray system is in the fluoroscopy mode or in the imaging mode, as recited in Claim 17. Rather, the '614 patent merely discloses a brightness control system in an X-ray imaging system.

Further, Applicants respectfully submit that the '614 patent fails to disclose the region transform unit configured to transform the first region to exclude the radiation region corresponding to the beam limiting when the first region includes the radiation region corresponding to the beam limiting, and to transform the second region to exclude the

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<sup>2</sup> See, '614 patent, Abstract.

radiation region corresponding to the beam limiting when the second region includes the radiation region corresponding to the beam limiting, as recited in Claim 17. Accordingly, for the reasons stated above, Applicants respectfully submit that the rejection of Claim 17 (and dependent Claims 18-21) is rendered moot by the present amendment to Claim 17.

Independent Claim 22 recites limitations analogous to the limitations recited in Claim 17. Moreover, Claim 22 has been amended in a manner analogous to the amendment to Claim 22. Accordingly, for the reasons stated above for the patentability of Claim 17, Applicants respectfully submit that the rejection of Claim 22 is rendered moot by the present amendment to Claim 22.

Thus, it is respectfully submitted that independent Claims 17 and 22 (and all associated dependent claims) patentably define over the '614 patent.

Consequently, in view of the present amendment and in light of the above discussion, the outstanding grounds for rejection are believed to have been overcome. The application as amended herewith is believed to be in condition for formal allowance. An early and favorable action to that effect is respectfully requested.

Respectfully submitted,

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